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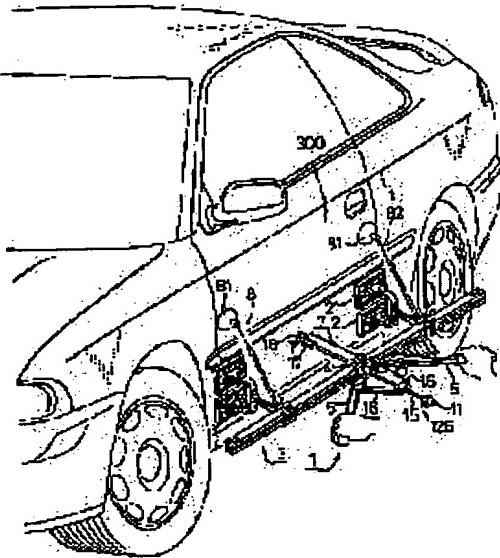
(21)Application number : 10-377088 (71)Applicant : ISHIHARA MITSUMASA
(22)Date of filing : 28.12.1998 (72)Inventor : ISHIHARA MITSUMASA

(54) PULLING TOOL FOR SHEET METAL

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a pulling tool for a sheet metal which has a wide applicable range by merely preparing a side rail means of the shortest length and is also easy to operate because the center of gravity is stable by constituting a central shaft so as to be transferable to a desired position in the longitudinal direction of the side rail means.

SOLUTION: This tool is provided with a side rail means 3 supporting a leg body 2, a frame means 4 which is supported by the side rail means 3 in the center of which a central shaft guide part is formed, and a central shaft 15 which is arranged orthogonally to the longitudinal direction of the side rail means 3 and inserted into the frame means 4. The side rail means 3 is constituted including two rails which are disposed so as to be parallel with each other, two parallel rails are fixed via a spacer forming an interval between the rails, and the central shaft 15 which is guided by the frame means 4 is inserted between two parallel rails.



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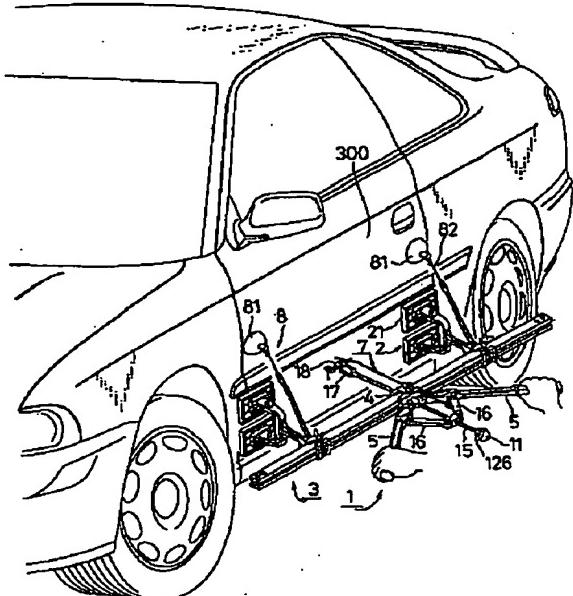
(71) 出願人 591092419
石原 光政
群馬県高崎市根小屋町 2221 番地 10
(72) 発明者 石原 光政
群馬県高崎市根小屋町 2221 番地 10
(74) 代理人 弁理士 近藤 豊

(54) 【発明の名称】板金用引出し具

(57) 【要約】

【課題】センターシャフトをサイドレール手段の長手方向の所望に位置に移動できるように構成し、最短の長さのサードレール手段を用意するだけで適用範囲が広く、また重心が安定し操作のし易い板金用引出し具を提供することにある。

【解決手段】脚体 2 を支持するサイドレール手段 3 と、サイドレール手段 3 に支持され、中央にセンターシャフトト案内部が形成されたフレーム手段 4 と、サイドレール手段 3 の長手方向に直交して配置されるとともに、フレーム手段 4 に挿通されたセンターシャフト 15 を備え、サイドレール手段 3 が、互いに平行するように配設された 2 本のレール 31、32 を含んで構成されるとともに、この 2 本の平行なレール 31、32 が軌間 D を形成するスペーサ 33 を介して固定され、2 本の平行なレール 31、32 間にフレーム手段 4 に案内されたセンター シャフト 15 が挿通されている。



【請求項 6】板金面に当接可能な接面部（21）を備えた脚体（2）と、

該脚体（2）を支持するサイドレール手段（3）と、該サイドレール手段（3）に摺動可能に支持され、中央にセンターシャフト案内部が形成されたフレーム手段（4）と、

前記サイドレール手段（3）の長手方向に直交して配置されるとともに、前記フレーム手段（4）に押通されたセンターシャフト（15）と、

板金の引出しの目安となる基準面までの板金の引出し深度を確認する引出し深度確認手段（7）と、

板金用引出し具体体を釣支する釣支手段（8）を備え、前記サイドレール手段（3）が、互いに平行するように配設された2本のレール（31，32）を含んで構成されるとともに、この2本の平行なレール（31，32）が軌間Dを形成するスペーサ（33）を介して固定され、

前記2本の平行なレール（31，32）間に前記フレーム手段（4）に案内された前記センターシャフト（15）が押通され、

前記センターシャフト（15）を上昇させながら板金面の引き出しを行うことを特徴とする板金用引出し具。

【請求項 7】前記引出し深度確認手段（7）が、メジャーリングバー（72）と、該メジャーリングバー（72）の先端に一端を固着したスプリング（73）と、該スプリング（73）の自由端部側に配設され引出し面に接触する接触子（74）を含んで構成されている請求項3乃至6いずれか一項に記載の板金用引出し具。

【請求項 8】前記引出し深度確認手段（7）の前記メジャーリングバー（72）が、押え板（75）により前記フレーム手段（4）に取着されている請求項7に記載の板金用引出し具。

【請求項 9】前記フレーム手段（4）とセンターシャフト（15）が前記サイドレール手段（3）の長手方向に一体となって摺動可能に配設されている請求項2、4、6いずれか一項に記載の板金用引出し具。

【請求項 10】前記フレーム手段（4）は、前記サイドレール手段（3）のレール（31，32）が押通される押通部（42）を備え、

この押通部（42）を画定する前記フレーム手段（4）の上下内面の中央には、前記フレーム手段（4）に押通され前記サイドレール手段（3）の長手方向に延びるように凸条（43，44）が形成されており、

該凸条（43，44）は前記スペーサ（33）と協働して前記レール（31，32）間に前記サイドレール手段（3）に全体に亘って前記軌間Dを保持する請求項1乃至9いずれか一項に記載の板金用引出し具。

【請求項 11】前記サイドレール手段（3）とフレーム手段（4）は、前記サイドレール手段（3）のレール（31，32）を前記フレーム手段（4）の前記押通部

（42）に押通した状態で、前記フレーム手段（4）の本体側部に螺合したつまみねじ（111）を前記押通部（42）に進め、前記レール（32）と当接することにより係止される請求項10に記載の板金用引出し具。

【請求項 12】前記釣支手段（8）を、吸盤（81）と、一端を該吸盤（81）に他端を前記脚体（2）に緊結した連結紐（82）とにより形成した請求項5または6に記載の板金用引出し具。

【請求項 13】前記釣支手段（8）を、磁石（86）と、一端を該磁石（86）に他端を前記脚体（2）に緊結した連結紐（82）とにより形成した請求項5または6に記載の板金用引出し具。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は板金用引出し具に関するものであり、特に板金時に引き出そうとする凹部を、該凹部に密着したワッシャを介して引き出すのに好都合な板金用引出し具の改良に関するものである。

【0002】

【従来の技術】従来、板金時に引き出そうとする凹部250を、該凹部250に密着した金具260を介して引き出すのに好都合な板金用引出し具として、図17乃至図20に示す板金用引出し具が提案されている。

【0003】

【発明が解決しようとする課題】従来の板金用引出し具においては、

①支柱203が一枚の面板により形成され、操作用アーム205の一端が支柱203に枢支されており、適用範囲を広げより広範囲の引出し作業を可能とするため支柱203を長尺にする場合には、操作用アーム205の操作に伴って支柱203に変形（捩じれ）が生じ易く、変形が起きた場合には板金用引出し具としての用をなさなくなる；

②脚体202の接面部221を腰の脆弱な面に接面して引出し作業を行うと、脚体202の接面部直下が押圧されてへこんだり（図17参照。図17（A）の状態から図17（B）の状態になる。）、引き出しを必要とする損傷部が移動したりする（図18参照。図18（B）の一点鎖線350で示した引き出し面が実線360で示した引き出し面に移動したりする。図18（A）の状態から図18（B）の状態になる。）。このことを回避し、引き出し作業を過不足なくしかも要領よく行うためにには、図19に示すように、脚体202の接面部221を腰の強い部分310（例えば、自動車のドア300の外側パネル301と内側パネル302により形成された骨格部310等……図21参照）に接面させて引出し作業を行なうことが有効（理想的）であるが、脚体202は支柱203の長手方向にスライドする構成となっているものの、可動棒215及び操作用アーム205は支柱203の長手方向にスライドして位置を移動できないため、

腰の強い部分310に脚体202の接面部221を接面させた状態で、中央部に生じた凹部（図19の符号365）の引出しのみならず、端部に生じた凹部（例えば、図20に示すような自動車のドアの外側パネルの骨格部310に近い端部に生じた凹部370）の引出しをも可能とするためには、図19に示す長さLの支柱では足らず、図20に示す長さN（=L+M；N>L）のより長尺な支柱を必要とし、支柱203が長尺となる場合にはその分引出し具の重心が不安定になり、又重量が増し取り扱いも不便となり円滑かつ迅速な板金作業が行えない；などの問題点があった。

【0004】従って本発明の目的は、引出し具本体に強度が賦与され、操作時に変形が生じにくく寿命の長い板金用引出し具を提供することにある。

【0005】本発明の他の目的は、センターシャフトをサイドレール手段の長手方向の所望に位置に移動できるように構成し、最短の長さのサードレール手段を用意するだけで適用範囲が広く、また重心が安定し操作のし易い板金用引出し具を提供することにある。

【0006】本発明のもう一つ他の目的は、引出し深度確認手段により引出しの目安となる基準面までの引出し具合を目視にて確認しながら板金作業を的確に行なえる板金用引出し具を提供することにある。

【0007】本発明の更にもう一つ他の目的は、サイドレール手段が長尺の場合でも、板金面への引出し具のセット時及び板金時の作業効率が良好な板金用引出し具を提供することにある。

【0008】

【課題を解決するための手段】本願の請求項1の発明は、板金面に当接可能な接面部を備えた脚体と、該脚体を支持するサイドレール手段と、該サイドレール手段に支持され、中央にセンターシャフト案内部が形成されたフレーム手段と、前記サイドレール手段の長手方向に直交して配置されるとともに、前記フレーム手段に押通されたセンターシャフトを備え、前記サイドレール手段が、互いに平行するように配設された2本のレールを含んで構成されるとともに、この2本の平行なレールが軌間Dを形成するスペーサを介して固定され、前記2本の平行なレール間に前記フレーム手段に案内された前記センターシャフトが押通され、前記センターシャフトを上昇させながら板金面の引き出しを行うことを特徴とする板金用引出し具である。

【0009】本願の請求項2の発明は、板金面に当接可能な接面部を備えた脚体と、該脚体を支持するサイドレール手段と、該サイドレール手段に摺動可能に支持され、中央にセンターシャフト案内部が形成されたフレーム手段と、前記サイドレール手段の長手方向に直交して配置されるとともに、前記フレーム手段に押通されたセンターシャフトを備え、前記サイドレール手段が、互いに平行するように配設された2本のレールを含んで構成されるとともに、この2本の平行なレールが軌間Dを形成するスペーサを介して固定され、前記2本の平行なレール間に前記フレーム手段に案内された前記センターシャフトが押通され、前記センターシャフト

されるとともに、この2本の平行なレールが軌間Dを形成するスペーサを介して固定され、前記2本の平行なレール間に前記フレーム手段に案内された前記センターシャフトが押通され、前記センターシャフトを上昇させながら板金面の引き出しを行うことを特徴とする板金用引出し具である。

【0010】本願の請求項3の発明は、板金面に当接可能な接面部を備えた脚体と、該脚体を支持するサイドレール手段と、該サイドレール手段に支持され、中央にセンターシャフト案内部が形成されたフレーム手段と、前記サイドレール手段の長手方向に直交して配置されるとともに、前記フレーム手段に押通されたセンターシャフトと、板金の引出しの目安となる基準面までの板金の引出し深度を確認する引出し深度確認手段を備え、前記サイドレール手段が、互いに平行するように配設された2本のレールを含んで構成されるとともに、この2本の平行なレールが軌間Dを形成するスペーサを介して固定され、前記2本の平行なレール間に前記フレーム手段に案内された前記センターシャフトが押通され、前記センターシャフトを上昇させながら板金面の引き出しを行うことを特徴とする板金用引出し具である。

【0011】本願の請求項4の発明は、板金面に当接可能な接面部を備えた脚体と、該脚体を支持するサイドレール手段と、該サイドレール手段に摺動可能に支持され、中央にセンターシャフト案内部が形成されたフレーム手段と、前記サイドレール手段の長手方向に直交して配置されるとともに、前記フレーム手段に押通されたセンターシャフトと、板金の引出しの目安となる基準面までの板金の引出し深度を確認する引出し深度確認手段を備え、前記サイドレール手段が、互いに平行するように配設された2本のレールを含んで構成されるとともに、この2本の平行なレールが軌間Dを形成するスペーサを介して固定され、前記2本の平行なレール間に前記フレーム手段に案内された前記センターシャフトが押通され、前記センターシャフトを上昇させながら板金面の引き出しを行うことを特徴とする板金用引出し具である。

【0012】本願の請求項5の発明は、板金面に当接可能な接面部を備えた脚体と、該脚体を支持するサイドレール手段と、該サイドレール手段に支持され、中央にセンターシャフト案内部が形成されたフレーム手段と、前記サイドレール手段の長手方向に直交して配置されるとともに、前記フレーム手段に押通されたセンターシャフトと、板金の引出しの目安となる基準面までの板金の引出し深度を確認する引出し深度確認手段と、板金用引出し具本体を釣支する釣支手段を備え、前記サイドレール手段が、互いに平行するように配設された2本のレールを含んで構成されるとともに、この2本の平行なレールが軌間Dを形成するスペーサを介して固定され、前記2本の平行なレール間に前記フレーム手段に案内された前記センターシャフトが押通され、前記センターシャフト

を上昇させながら板金面の引き出しを行うことを特徴とする板金用引出し具である。

【0013】本願の請求項6の発明は、板金面に当接可能な接面部を備えた脚体と、該脚体を支持するサイドレール手段と、該サイドレール手段に摺動可能に支持され、中央にセンターシャフト案内部が形成されたフレーム手段と、前記サイドレール手段の長手方向に直交して配置されるとともに、前記フレーム手段に挿通されたセンターシャフトと、板金の引出しの目安となる基準面までの板金の引出し深度を確認する引出し深度確認手段と、板金用引出し具本体を釣支する釣支手段を備え、前記サイドレール手段が、互いに平行するように配設された2本のレールを含んで構成されるとともに、この2本の平行なレールが軌間Dを形成するスペーサを介して固定され、前記2本の平行なレール間に前記フレーム手段に案内された前記センターシャフトが挿通され、前記センターシャフトを上昇させながら板金面の引き出しを行うことを特徴とする板金用引出し具である。

【0014】本願の請求項7の発明は、上記引出し深度確認手段が、メジャーリングバーと、該メジャーリングバーの先端に一端を固着したスプリングと、該スプリングの自由端部側に配設され引出し面に接触する接触子を含んで構成されている板金用引出し具である。

【0015】本願の請求項8の発明は、上記引出し深度確認手段の上記メジャーリングバーが、押え板により上記フレーム手段に取着されている板金用引出し具である。

【0016】本願の請求項9の発明は、上記フレーム手段とセンターシャフトが上記サイドレール手段の長手方向に一体となって摺動可能に配設されている板金用引出し具である。

【0017】本願の請求項10の発明は、上記フレーム手段は、上記サイドレール手段のレールが挿通される挿通部を備え、この挿通部を画定する上記フレーム手段の上下内面の中央には、上記フレーム手段に挿通され上記サイドレール手段の長手方向に延びるように凸条が形成されており、該凸条は上記スペーサと協働して上記レール間に上記サイドレール手段に全体に亘って上記軌間Dを保持する板金用引出し具である。

【0018】本願の請求項11の発明は、上記サイドレール手段とフレーム手段は、上記サイドレール手段のレールを上記フレーム手段の上記挿通部に挿通した状態で、上記フレーム手段の本体側部に螺合したつまみねじを上記挿通部に進め、上記レールと当接することにより係止される板金用引出し具である。

【0019】本願の請求項12の発明は、上記釣支手段を、吸盤と、一端を該吸盤に他端を上記脚体に緊結した連結紐とにより形成した板金用引出し具である。

【0020】本願の請求項13の発明は、上記釣支手段を、磁石と、一端を該磁石に他端を上記脚体に緊結した

連結紐とにより形成した板金用引出し具である。

【0021】

【発明の実施の形態】本発明の実施の形態を添付図面とともに説明する。図1は本発明の板金用引出し具を用いて自動車のボーダーを引出している使用状態を示す斜視図、図2は板金用引出し具の斜視図、図3は板金用引出し具の操作用アームを拡開した状態を示す斜視図、図4は板金用引出し具の各構成部品を示す分解斜視図、図5は板金用引出し具の操作用アーム、センターシャフト、10連結アーム等の構成部品を示す分解斜視図、図6は板金用引出し具を構成しているサイドレール手段の構成部品を示す分解斜視図、図7は板金用引出し具の脚体の構成部品を示す分解斜視図、図8は板金用引出し具の正面図、図9は板金用引出し具の背面図である。

【0022】これらの図において、板金用引出し具1は、板金面に当接可能な接面部21を備えた一対の脚体2、2と、この脚体2を摺動可能に支持するサイドレール手段3と、このサイドレール手段3に支持され、その中央にセンターシャフト案内部が形成されたフレーム手段4を備えている。すなわち、このフレーム手段4は、前記サイドレール手段3に摺動可能に支持され、中央に貫通孔が41が穿設されたライドフレーム手段4として形成されている。更に、板金用引出し具1は、このライドフレーム手段4に各一端を枢支した一対の操作用アーム5と、前記サイドレール手段3の長手方向に直交して配置するとともに、前記ライドフレーム手段4の貫通孔41に挿通され、かつ前記操作用アーム5の操作により可動するセンターシャフト15と、前記各操作用アーム5に対応して配設され、かつ一端を前記操作用アーム5に、他端を前記センターシャフト15側にそれぞれ枢着した連結アーム16とを備えている。そして、前記ライドフレーム手段4と、操作用アーム5と、センターシャフト15は前記サイドレール手段3の長手方向に一体となって摺動可能に配設されている。

【0023】このうち、前記脚体2は、フットボディ22と、このフットボディ22に枢支している回動脚片25より形成されている（図4、図7参照）。前記フットボディ22の上部には前記サイドレール3が挿通するぐり抜き部23が形成され、また下部には分岐した双脚子24、24が形成されている。前記回動脚片25は、フットボード26と、このフットボード26を頭成しゴムバットとして形成されたベース27より構成されている。そして、前記フットボディ22と回動脚片25は連結部材28により連結される。この連結部材28は、短軸28Aを備え、中央には案内溝28Bが形成されている。前記連結部材28は、前記短軸28Aに押え金具104を被せた状態で前記フットボード26に形成された中央凹所26Aに収容され、ワッシャー103を介してねじ102により前記フットボード26に固定される。

50また前記案内溝28Bにはテンションばね101が挿入

され、その上方に前記双脚子 24 の下端部を当接し、ボルト 105、ワッシャ 106、ナット 107 を用いて前記フットボディ 22 を連結部材 28 に枢支する。かくして、前記脚体 2 のそれぞれの回動脚片 25 は、脚体 2 の下部に枢支されかつ前記サイドレール手段 3 の長手方向（図 4 の X-X 方向）及び長手方向に直交する方向（図 4 の Y-Y 方向）の四方向に回動自在に形成されている。また、前記脚体 2 は、前記サイドレール手段 3 を前記くり抜き部 23 に案内し押通した状態で、前記脚体 2 のフットボディ 22 に螺合したつまみねじ 110 を前記くり抜き部 23 に進め、レール 32 と当接することにより前記サイドレール手段 3 と脚体 2 との固定をはかることが可能である。前記脚体 2、2 間の間隔 S（図 8、図 9 参照）は、引出し箇所の位置や接面部 21 の状態を考慮して適宜選定し、最も安定した状態（例えば、接面部 21 を引出し面の腰の強い部分に接面させた状態）の間隔をとることが肝要である。

【0024】前記サイドレール手段 3 は、互いに平行するように配設された 2 本のレール 31、32 を含んで構成され、この 2 本の平行なレール 31、32 間に前記スライドフレーム手段 4 に案内された前記センターシャフト 15 が押通する（図 6 参照）。前記サイドレール手段 3 を構成する 2 本の平行なレール 31、32 は、両端部において軌間 D（図 10 参照）を形成し保持するスペーサ 33 を介し、ボルト 35 とナット 36 により固定される。符号 34 はレール補強用の補強板であり、このレール 34 の両端空所より挿入しボルト 35 とナット 36 により固定される。

【0025】前記スライドフレーム手段 4 は、前記サイドフレーム手段 3 のレール 31、32 が押通される押通部 42 を備え、この押通部 42 を画定する前記スライドフレーム手段 4 の上下内面の中央には、前記スライドフレーム手段 4 に押通され前記サイドレール手段 3 の長手方向に延びるように凸条 43、44 が形成されている（図 4、図 5 参照）。この凸条 43、44 は前記スペーサ 33 と協働して前記レール 31、32 間に前記サイドレール手段 3 に全体に亘って前記軌間 D を保持する。又前記貫通孔 41 を形成する立上り部 45、46 が前記サイドレール手段 3 の長手方向（図 4、図 5 における X-X 方向）に形成され、この立上り部 45、46 において、前記操作用アーム 5 の基礎部が、ボルト 112、ワッシャー 113、ナット 114 を用いて枢支される（図 4、図 5 参照）。そして、前記スライドフレーム手段 4 は、前記サイドレール手段 3 のレール 31、32 を前記スライドフレーム手段 4 の前記押通部 42 に押通した状態で、前記スライドフレーム手段 4 の本体側部に螺合したつまみねじ 111 を前記押通部 42 に進め、前記レール 32 と当接することにより前記サイドレール手段 3 とスライドフレーム手段 4 との係止（固定）が図られる。かくして、前記スライドフレーム手段 4 をスライドさせ

て移動させることにより、板金作業に最適な所望の位置に前記操作用アーム 5 及びセンターシャフト 15 を移動させることができ、前記前記サイドレール手段 3 の長さ（尺）を最短に形成しても広範囲の引出しが可能であり、又軽量化が図れる。

【0026】前記操作用アーム 5 は、前述の通り、その基礎部が前記スライドフレーム 4 に枢支されているが、更に基底部よりやや上方に形成された延出部 5A（図 3、図 4、図 5、図 12 参照）が、前記連結アームの一端にボルト 115、ワッシャー 116、ナット 117 を用いて枢支される（図 4 参照）。そして、この操作用アーム 5 は、前記 2 本のレール 31、32 の軌道によって画成される平面延長上に位置するように配設されている。このため、作業時に前記サイドレール手段 3 の変形（振じれ）を防止でき、また重心も安定する。更に前記サイドレール手段 3 の強度を最大限に利用できる。

【0027】また、板金の引出しの目安となる基準面までの板金の引出し深度を確認する引出し深度確認手段 7 が、前記スライドフレーム手段 4 に垂下して配設されている。この引出し深度確認手段 7 は、摘み 71 と、この摘み 71 に連結したメジャーリングバー 72 と、このメジャーリングバー 72 の先端に一端を固着したスプリング 73 と、このスプリング 73 の自由端部側に配設され引出し面に接触する、チップ球により形成された接触子 74 を含んで構成されている。前記メジャーリングバー 72 は、ワッシャー 76 とねじ 77 により前記スライドフレーム 4 に止着される押え板 75 により前記スライドフレーム手段 4 に取着されている。かくして、この引出し深度確認手段 7 により引出しの目安となる基準面までの引出し具合を目視にて確認しながら板金作業を的確に行なえる。

【0028】更に、板金用引出し具本体を釣支する釣支手段 8 が、前記脚体 2 に取り付けられている。この釣支手段 8 は、吸盤 81 と、一端を該吸盤 81 に他端を前記脚体 2 に緊結した連結紐 82 とにより構成されている。符号 83 は連結紐 82 の長さを調整する連結紐調整手段である。この釣支手段 8 を備えているので、サイドレール手段 3 が長尺になる場合でも、引出し具をセットする際及び板金時の作業がし易い。

【0029】前記センターシャフト 15 の上半部の表面にはねじ山が刻設されており、ハンドル 11 を回転することにより前記スライドフレーム 4 の貫通孔 41 より突出するセンターシャフトの長さ h（図 8 参照）を調整することが可能である。符号 12 は、センターシャフト 15 と螺合するめねじ部が中央の貫通孔の内側周壁に形成された昇降片であり、前記連結アーム 16 の他端が、ボルト 122、ワッシャー 123、ナット 124 を用いて枢着される（図 4、図 5 参照）。また前記センターシャフト 15 の下端は、めねじ部を有するシェル 17 を介してアタッチメント 18 に接続される。なお、前記シェル

17はめねじ部が前記アタッチメント18に螺合し、前記センターシャフト15は前記シェル17の貫通孔17A内で回動自在な遊嵌状態にある。符号125はワッシャー、126はナットである。

【0030】しかして、前記操作用アーム5を操作した際、操作用アーム5の回動の中心Rと、前記連結アーム16の枢着点P、Qとが一直線上に並んだ場合にセンターシャフト15は最も引き上げられた状態になる。この状態は、左右の操作アームが略平行になる直前の状態であり、従って、図2、図8、図9に示すように左右の操作用アーム5、5を操作して完全に閉じ平行になったときには、センターシャフト15は若干下方へ下がり、センターシャフト15は操作用アーム5、5及び連結アーム16、16によってロックされる。

【0031】(板金引出し具の使用方法)ここで、本発明に係る板金用引出し具1の使用方法を図14及び図15図を用いて説明する。ここでは、自動車のドア300(図1、図21参照)外側パネル301に生じた凹所303を引き出す場合を説明する。

①先ず、脚体2、2の間隔Sを調節した上で、引き出しを必要としない反対側の自動車ドア300側に釣支手段8を用いて板金用引出し具1を釣支し板金可能にセットする。

②次に、スライドフレーム手段4を摺動させて、引き出しを必要とする凹所303に相当する場所(位置)の直上に引出し深度確認手段7の接触子74を持ってくる。この状態で、ばね73、押さ板75を調節して接触子74が自動車の外側パネル301に接触するようセットする。

③上記①②の操作を行って調節した板金用引出し具1を、今度は引き出しを必要とする外側パネル301側に移す。そして、釣支手段8を用いて引き出しを必要とする凹部303近傍の腰の強い箇所(自動車のドア300の外側パネル301と内側パネル302により形成された骨格部310。図21参照)に脚体2の接面部21を接面させる。

④スライドフレーム手段4を摺動し、引出し深度確認手段7が引き出しを必要とする凹所303の直上にくるようにセットする。

⑤センターシャフト15のハンドル11を操作して、スライドフレーム手段4の貫通孔41より突出するセンターシャフト15の長さhを調整し、引き出す凹所303に溶着したワッシャー260とアタッチメント18を横棒270を介して係合させる(図15)。

⑥操作用アーム5、5の把持部を手で把持し、左右の操作用アーム5、5を操作してセンターシャフト15側に倒して徐々に閉じ、接触子74が引き出し面(凹所)303に当接し、さらに戻り分を考慮して接触子74が若干上方に押し上げられる程度まで引き出し面303を引き上げる。このとき、てこの原理により、センターシャフ

ト15は上方に引き上げられる。これに伴いワッシャー260も上方に引き上げられ、引き出そうとしている凹所303は引き出される。この際各ワッシャー260には略均一な力が加えられるため、凹所303は均一に引き出され、引き出し面は平滑になる。そして、引き出し面を引き出す力の反力は、接面部21、21に分散される。左右の操作用アーム5、5を閉じたときには、センターシャフト15はロックされるため、凹部303を引っ張った状態でたたき作業、加熱作業ができ、スムーズな引き出し作業を行える。

【0032】なお、図16に示されるように、脚体202のフットボディ222を単脚子224により形成したり、吸盤81の代わりに磁石86を用いてもよい。

【0033】

【発明の効果】本発明は以上の如く構成され、本発明によれば次の効果を奏する。

①引出し具本体を構成するサイドレール手段に強度が賦与され操作時に変形が生じにくいので寿命の長い板金用引出し具が得られる。

②センターシャフトをサイドレール手段の長手方向の所望に位置に移動できるように構成してあるので、最短の長さのサードレール手段を用意するだけで広範囲の引出しが可能となり、又重心も安定しているので操作がしやすく板金作業を安全かつ容易に行うことができる。

③引出し深度確認手段により引出しの目安となる基準面までの引出しを予めセットできるので、無駄のない板金作業が可能となる。

④サイドレール手段が長尺の場合でも板金用具本体を釣支する釣支手段を備えているので、板金面へ引出し具をセットする時及び/または板金時の作業効率が良好であり、更に板金時には引出し作業にのみ集中して作業することができる。

【図面の簡単な説明】

【図1】本発明の板金用引出し具を用いて自動車のボーダーを引出している使用状態を示す斜視図である。

【図2】板金用引出し具の斜視図である。

【図3】板金用引出し具を構成している操作用アームを拡開した状態を示す斜視図である。

【図4】板金用引出し具の各構成部品を示す分解斜視図である。

【図5】板金用引出し具を構成しているスライドフレーム手段、操作用アーム、センターシャフト、連結アームの各構成部品を示す分解斜視図である。

【図6】板金用引出し具を構成しているサイドレール手段の構成部品を示す分解斜視図である。

【図7】板金用引出し具を構成している脚体の構成部品を示す分解斜視図、図8は板金用引出し具の正面図である。

【図8】板金用引出し具の正面図である。

【図9】板金用引出し具の背面図である。

【図10】板金用引出し具の平面図である。

〔図11〕板金用引出し具の側面図である。

【図12】板金用引出し具を構成している操作用アームを操作している状態の要部を示す斜視図である。

【図1-3】板金用引出し具を構成しているスライドフレーム手段を引き出し面にスライドさせた状態の要部を示す正面図である。

【図14】板金用引出し具を構成している引出し深度確認手段の使用状態を示す平面略図である。

【図15】板金用引出し具を構成している引出し深度確認手段の使用状態を示す平面略図であり、四角のプロックの中に引出し深度確認手段の要部を拡大して示したものである。

【図16】板金用引出し具の他の例を示す斜視図である。

【図17】従来の板金用引出し具の使用状態を示す正面図である。

【図18】従来の板金用引出し具の使用状態を示す正面図である。

【図19】従来の板金用引出し具の使用状態を示す正面図である。

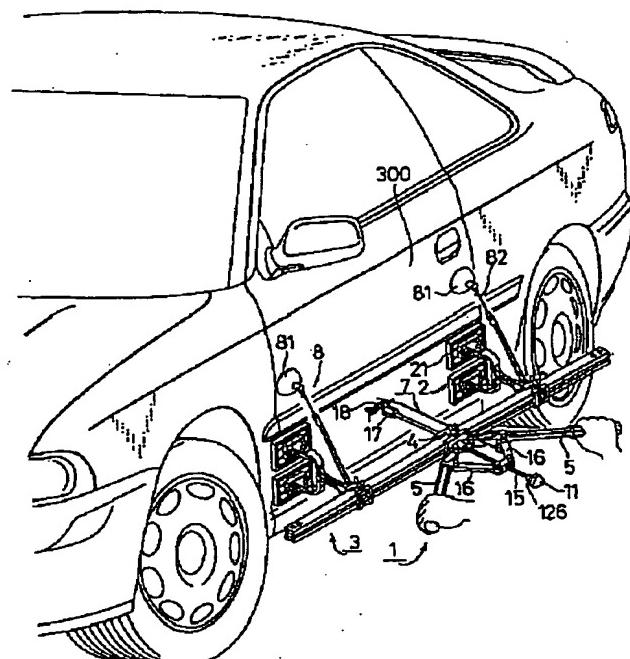
【図20】従来の板金用引出し具の使用状態を示す正面図である。

【図21】自動車のドアを示す略図であり、図21(A)はその斜視図、図21(B)は図21(A)のZ-Z断面略図である。

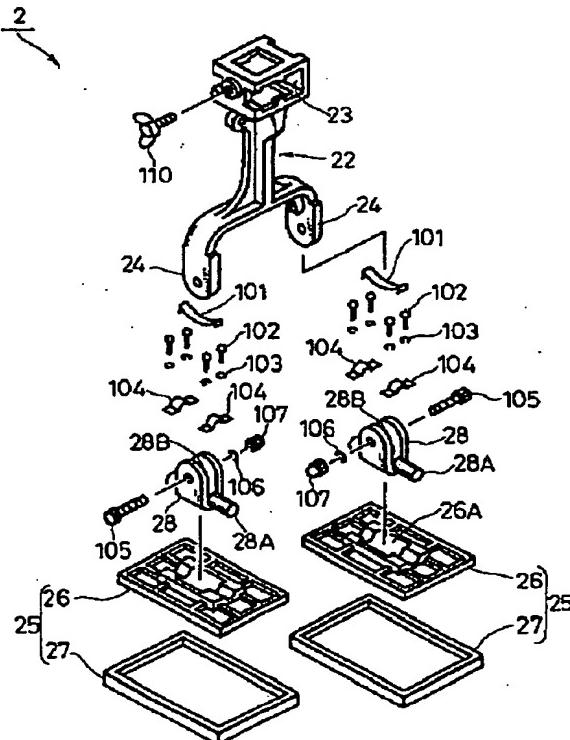
【符号の説明】

- | | |
|-----|------------|
| 1 | 板金用引出し具 |
| 2 | 脚体 |
| 3 | サイドレール手段 |
| 4 | スライドフレーム手段 |
| 5 | 操作用アーム |
| 7 | 引出し深度確認手段 |
| 8 | 釣支手段 |
| 1 5 | センターシャフト |
| 1 6 | 連結アーム |
| 3 1 | レール |
| 3 2 | レール |
| 3 3 | スペーサ |
| 2 1 | 接面部 |
| 4 1 | 貫通孔 |
| 7 2 | メジャーリングバー |
| 7 3 | スプリング |
| 7 4 | 接触子 |
| 8 1 | 吸盤 |
| 8 2 | 連結紐 |

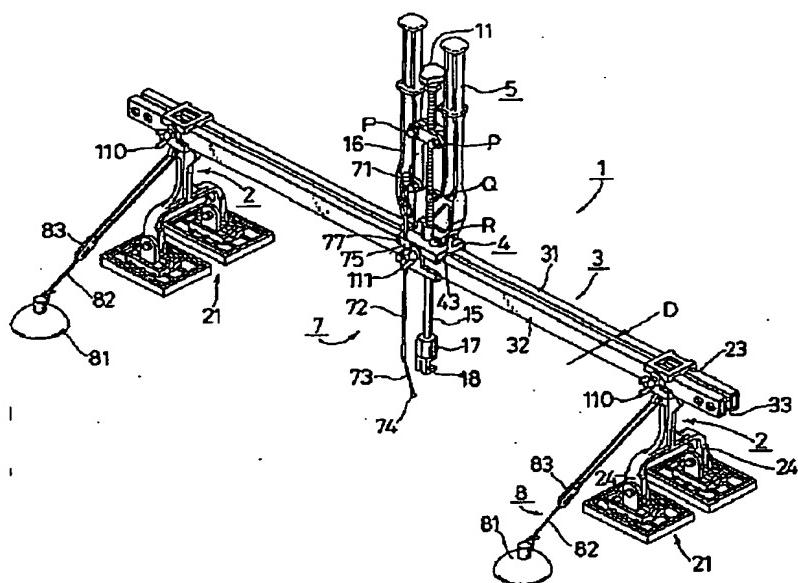
[図 1]



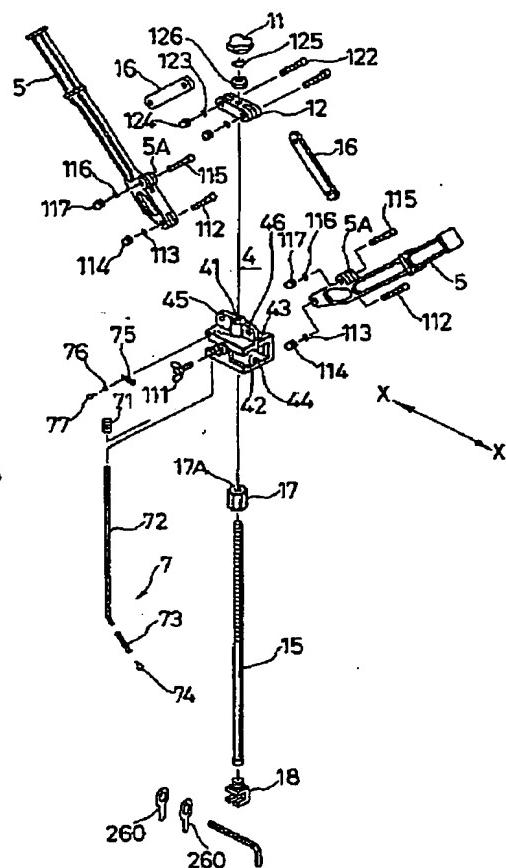
〔図7〕



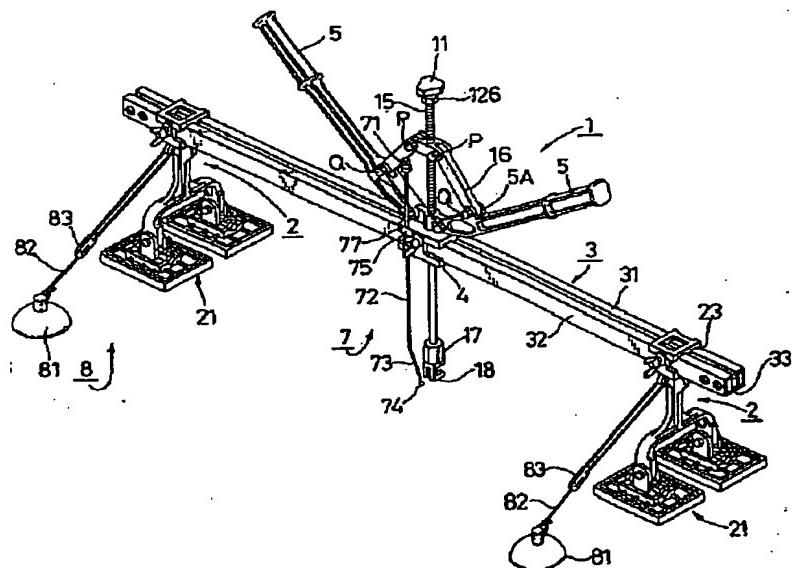
【図 2】



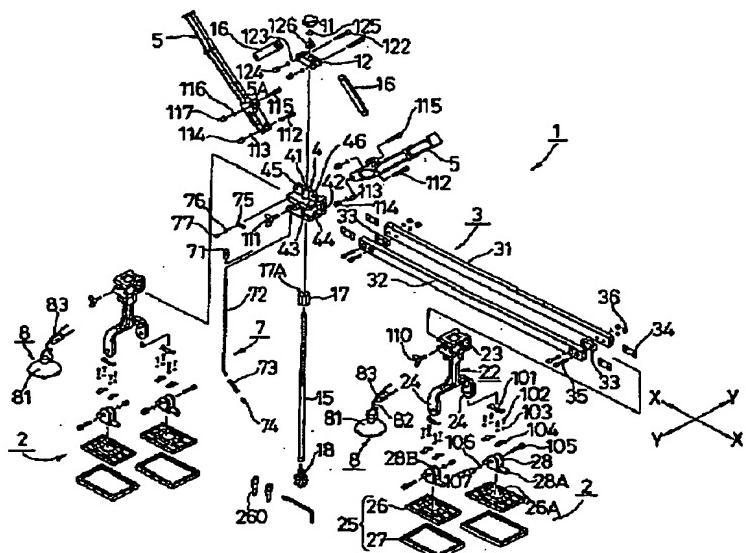
【図 5】



【図 3】

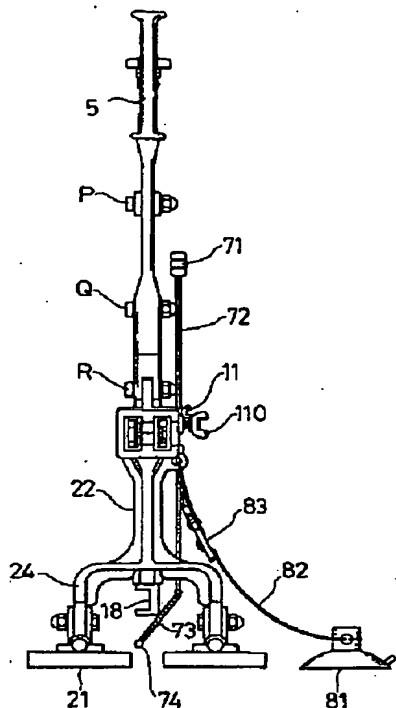


【四】



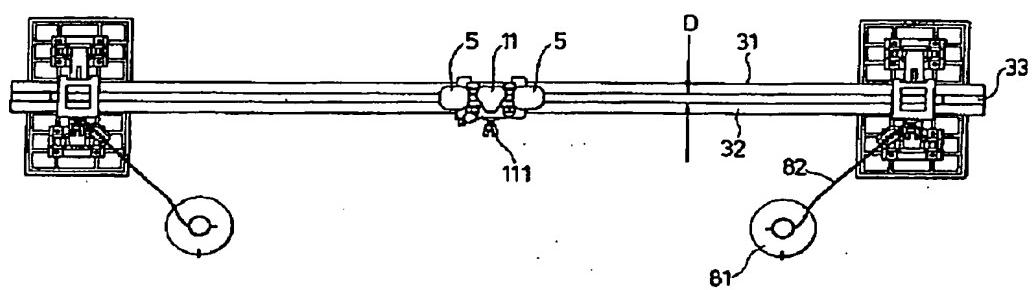
【図 6】

〔図 1 1〕

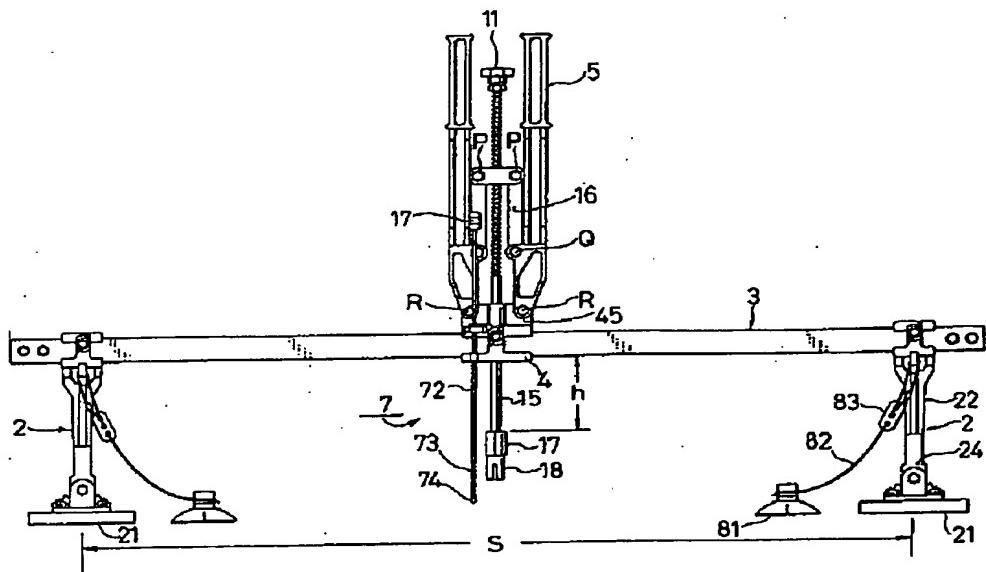


An exploded view diagram of a track assembly. The main component is a long, thin rectangular plate labeled 31, which is oriented diagonally. Above it is a wider, flat plate labeled 32, also oriented diagonally. Along the top edge of plate 32, there are several small rectangular blocks labeled 33. Between these blocks and the top surface of plate 32, there are cylindrical components labeled 34. At the bottom end of plate 32, there is a larger rectangular block labeled 35, which appears to be a wheel or a support. To the right of plate 32, there are additional components labeled 36, 34, 35, 33, and 34, suggesting they are part of the assembly or related parts.

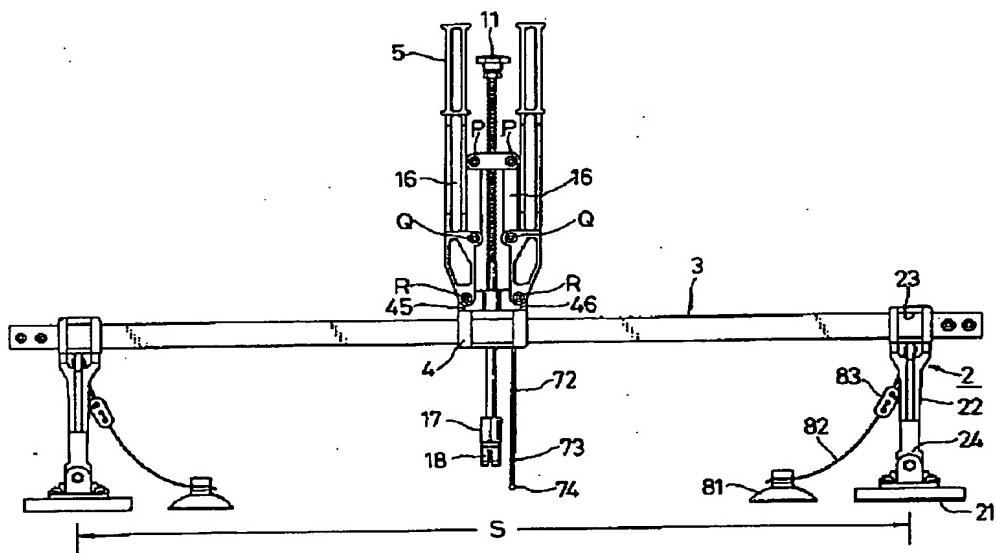
〔図10〕



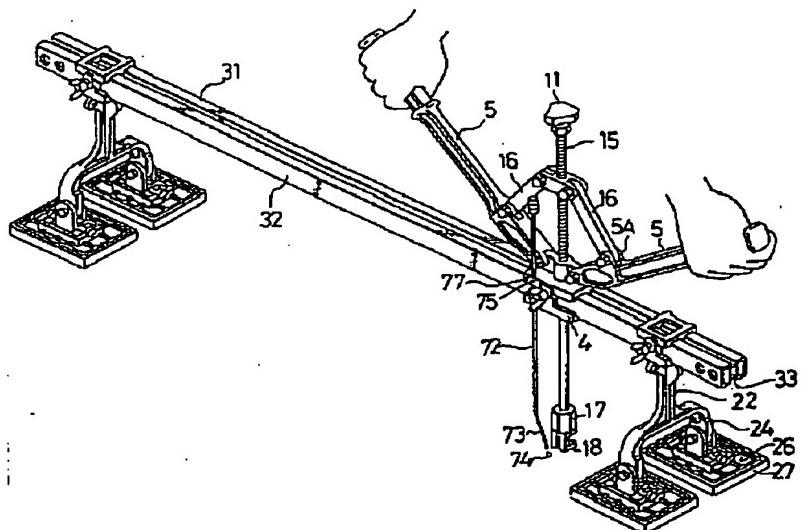
【図 8】



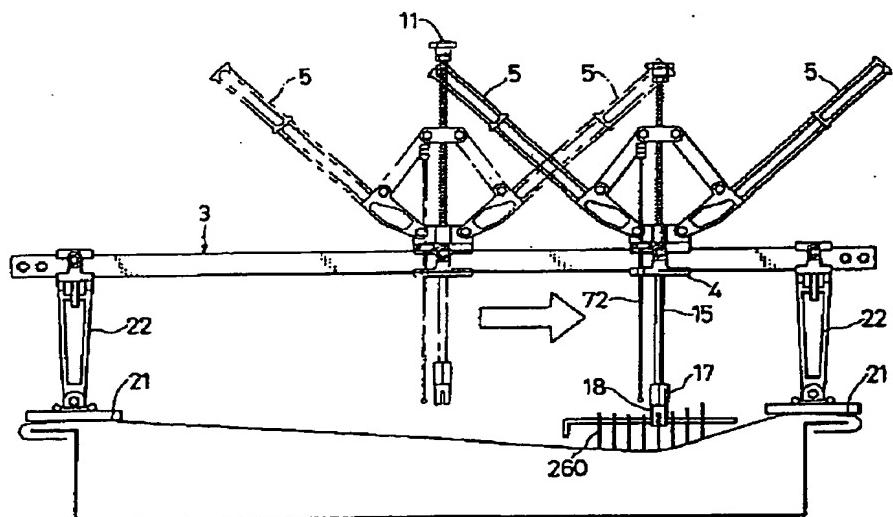
【図 9】



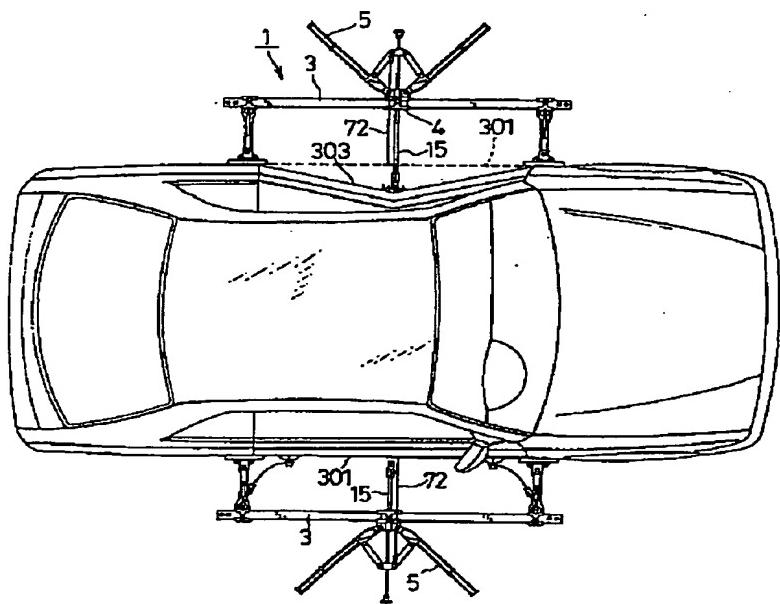
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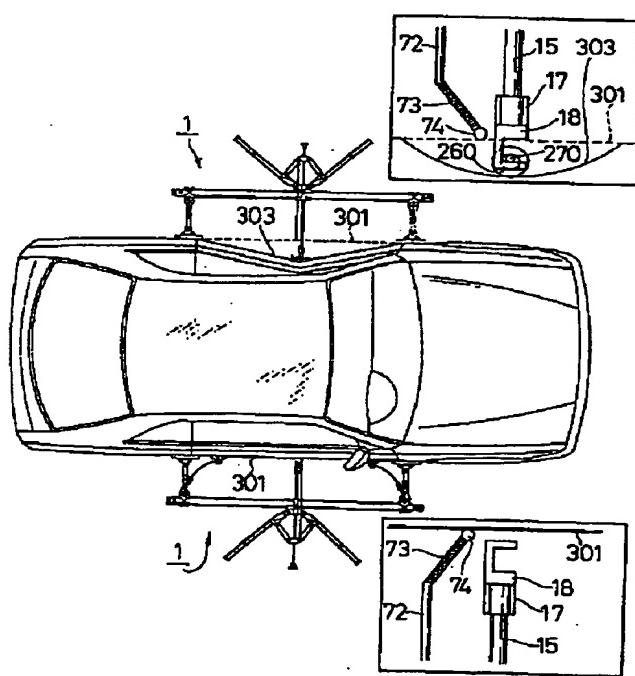
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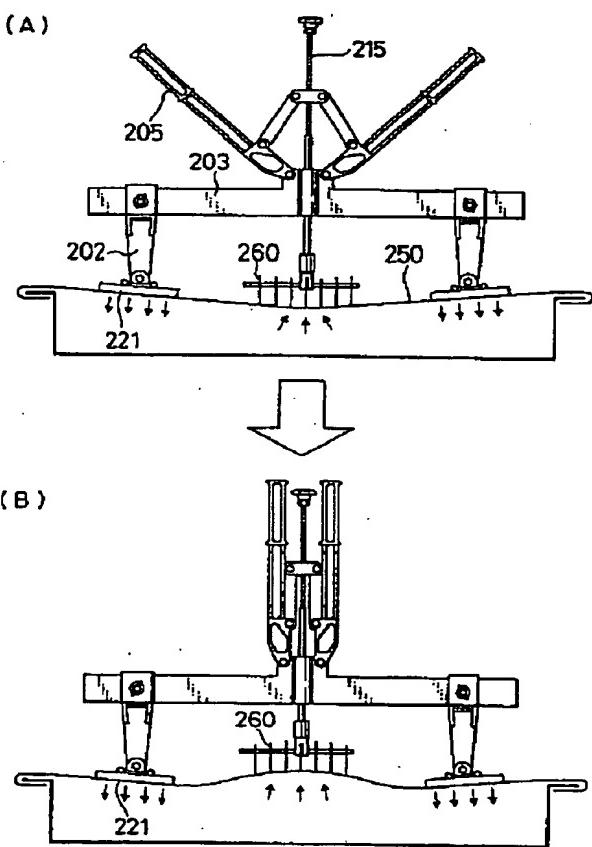
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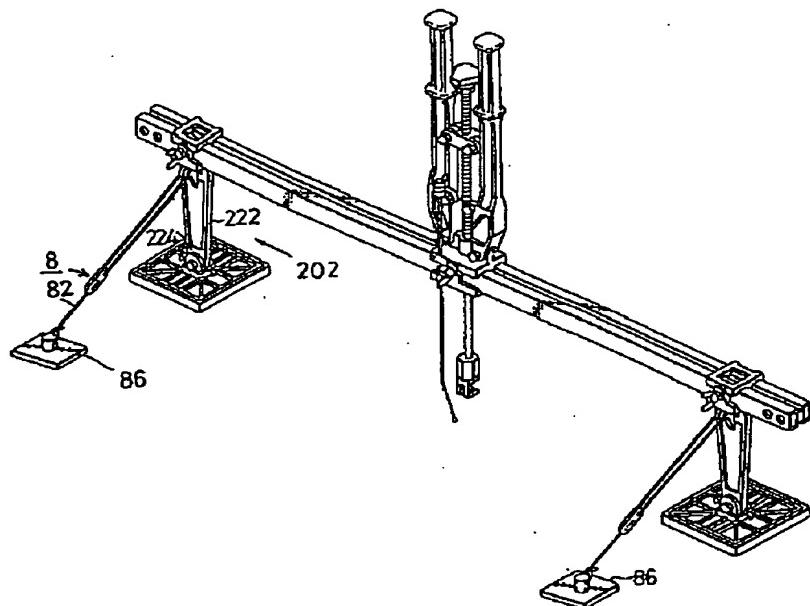
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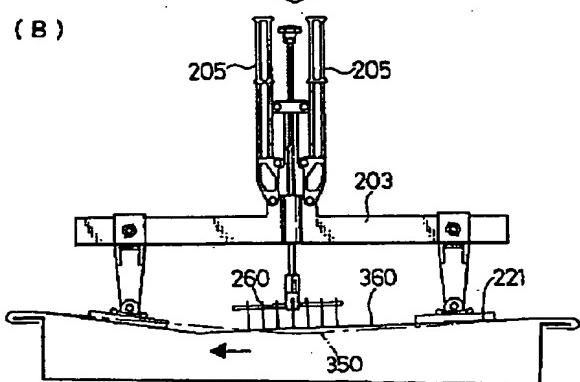
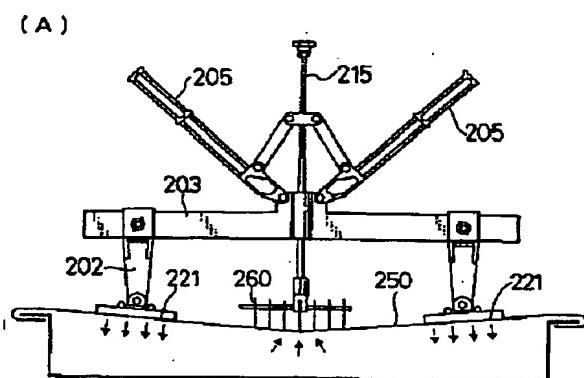
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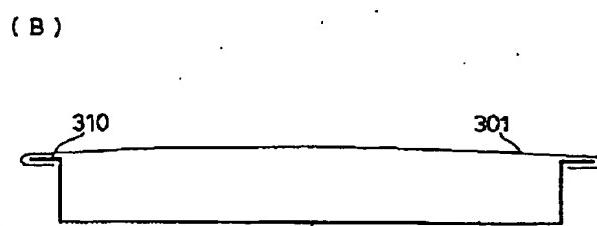
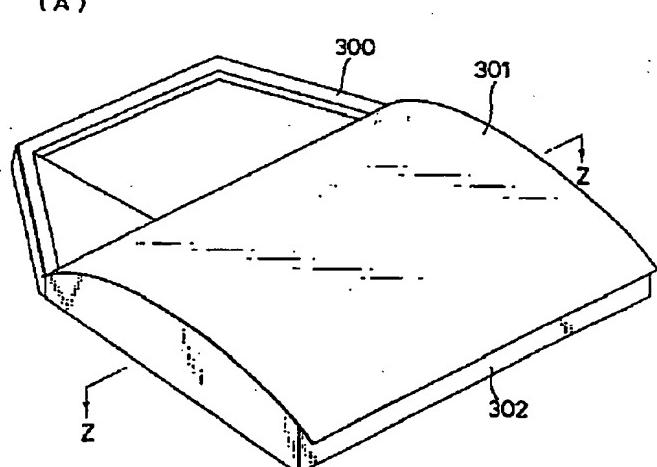
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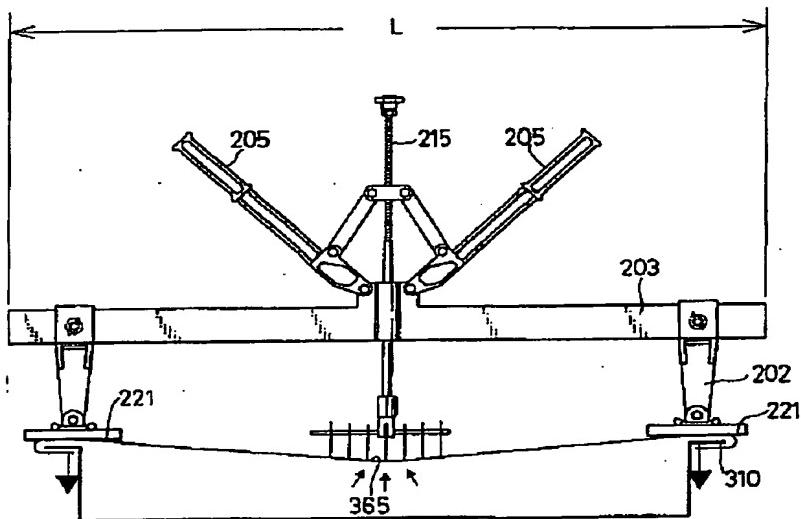
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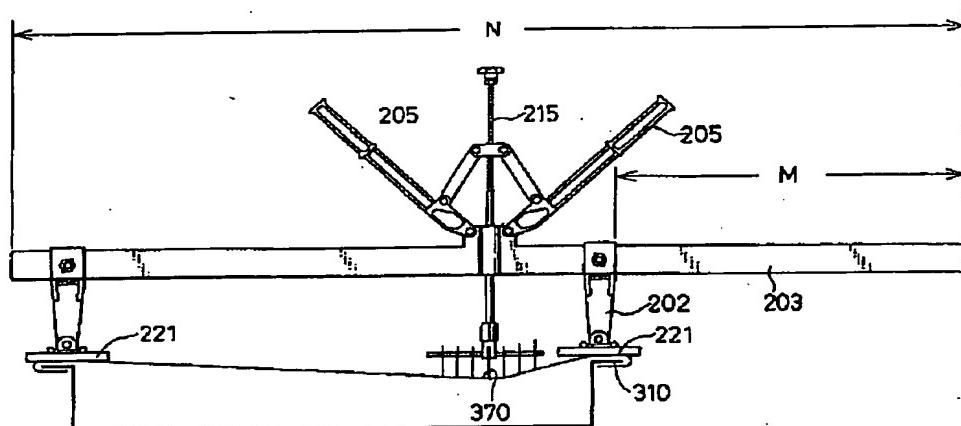
【図 21】



【図 19】



【図 20】



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CLAIMS

[Claim(s)]

[Claim 1] A side-rail means to support the leg object (2) equipped with the plane-of-composition section (21) which can contact a sheet-metal side, and this leg object (2) (3), While intersecting perpendicularly with the longitudinal direction of a frame means (4) by which it was supported by this side-rail means (3), and the pin center,large shaft advice section was formed in the center, and said side-rail means (3) and being arranged While having the pin center,large shaft (15) inserted in said frame means (4) and constituting said side-rail means (3) including two rails (31 32) arranged so that it might be mutually parallel These two parallel rails (31 32) are fixed through the spacer (33) which forms Gage D. The cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft (15) guided at said frame means (4) being inserted in between said two parallel rails (31 32), and raising said pin center,large shaft (15).

[Claim 2] A side-rail means to support the leg object (2) equipped with the plane-of-composition section (21) which can contact a sheet-metal side, and this leg object (2) (3), While intersecting perpendicularly with the longitudinal direction of a frame means (4) by which it was supported by this side-rail means (3) possible [sliding], and the pin center,large shaft advice section was formed in the center, and said side-rail means (3) and being arranged While having the pin center,large shaft (15) inserted in said frame means (4) and constituting said side-rail means (3) including two rails (31 32) arranged so that it might be mutually parallel These two parallel rails (31 32) are fixed through the spacer (33) which forms Gage D. The cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft (15) guided at said frame means (4) being inserted in between said two parallel rails (31 32), and raising said pin center,large shaft (15).

[Claim 3] A side-rail means to support the leg object (2) equipped with the plane-of-composition section (21) which can contact a sheet-metal side, and this leg object (2) (3), While intersecting perpendicularly with the longitudinal direction of a frame means (4) by which it was supported by this side-rail means (3), and the pin center,large shaft advice section was formed in the center, and said side-rail means (3) and being arranged The pin center,large shaft inserted in said frame means (4) (15), It has a cash-drawer depth check means (7) to check the cash-drawer depth of the sheet metal to the datum level used as the rule of thumb of the cash drawer of a sheet metal. While said side-rail means (3) is constituted including two rails (31 32) arranged so that it might be mutually parallel These two parallel rails (31 32) are fixed through the spacer (33) which forms Gage D. The cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft (15) guided at said frame means (4) being inserted in between said two parallel rails (31 32), and raising said pin center,large shaft (15).

[Claim 4] A side-rail means to support the leg object (2) equipped with the plane-of-composition section (21) which can contact a sheet-metal side, and this leg object (2) (3), While intersecting perpendicularly with the longitudinal direction of a frame means (4) by which it was supported by this side-rail means (3) possible [sliding], and the pin center,large shaft advice section was formed in the center, and said side-rail means (3) and being arranged The pin center,large shaft inserted in said frame means (4) (15), It has a cash-drawer depth check means (7) to check the cash-drawer depth of the sheet metal to the datum level used as

the rule of thumb of the cash drawer of a sheet metal. While said side-rail means (3) is constituted including two rails (31 32) arranged so that it might be mutually parallel These two parallel rails (31 32) are fixed through the spacer (33) which forms Gage D. The cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft (15) guided at said frame means (4) being inserted in between said two parallel rails (31 32), and raising said pin center,large shaft (15).

[Claim 5] A side-rail means to support the leg object (2) equipped with the plane-of-composition section (21) which can contact a sheet-metal side, and this leg object (2) (3), While intersecting perpendicularly with the longitudinal direction of a frame means (4) by which it was supported by this side-rail means (3), and the pin center,large shaft advice section was formed in the center, and said side-rail means (3) and being arranged The pin center,large shaft inserted in said frame means (4) (15), A cash-drawer depth check means to check the cash-drawer depth of the sheet metal to the datum level used as the rule of thumb of the cash drawer of a sheet metal (7), While having a hanging means (8) to hang the body for sheet metals of a cash-drawer implement and constituting said side-rail means (3) including two rails (31 32) arranged so that it might be mutually parallel These two parallel rails (31 32) are fixed through the spacer (33) which forms Gage D. The cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft (15) guided at said frame means (4) being inserted in between said two parallel rails (31 32), and raising said pin center,large shaft (15).

[Claim 6] A side-rail means to support the leg object (2) equipped with the plane-of-composition section (21) which can contact a sheet-metal side, and this leg object (2) (3), While intersecting perpendicularly with the longitudinal direction of a frame means (4) by which it was supported by this side-rail means (3) possible [sliding], and the pin center,large shaft advice section was formed in the center, and said side-rail means (3) and being arranged The pin center,large shaft inserted in said frame means (4) (15), A cash-drawer depth check means to check the cash-drawer depth of the sheet metal to the datum level used as the rule of thumb of the cash drawer of a sheet metal (7), While having a hanging means (8) to hang the body for sheet metals of a cash-drawer implement and constituting said side-rail means (3) including two rails (31 32) arranged so that it might be mutually parallel These two parallel rails (31 32) are fixed through the spacer (33) which forms Gage D. The cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft (15) guided at said frame means (4) being inserted in between said two parallel rails (31 32), and raising said pin center,large shaft (15).

[Claim 7] The cash-drawer implement for sheet metals given in claim 3 thru/or 6 any 1 terms constituted including contact (74) which said cash-drawer depth check means (7) is arranged at the head of a measuring bar (72) and this measuring bar (72) at the free edge side of the spring (73) which fixed the end, and this spring (73), and contacts a cash-drawer side.

[Claim 8] The cash-drawer implement for sheet metals according to claim 7 by which said measuring bar (72) of said cash-drawer depth check means (7) is attached in said frame means (4) with the pressure plate (75).

[Claim 9] The cash-drawer implement for sheet metals given in claims 2 and 4 in which said frame means (4) and pin center,large shaft (15) are united in the longitudinal direction of said side-rail means (3), and are arranged possible [sliding], and 6 any 1 terms.

[Claim 10] Said frame means (4) is equipped with the insertion section (42) in which the rail (31 32) of said side-rail means (3) is inserted. In the center of the vertical inner surface of said frame means (4) to demarcate this insertion section (42) The protruding line (43 44) is formed so that it may be inserted in said frame means (4) and may extend in the longitudinal direction of said third rail means (3). This protruding line (43 44) is a cash-drawer implement for sheet metals given in claim 1 which collaborates with said spacer (33) and holds said gage D for said rail (31 32) at the whole for said side-rail means (3) thru/or 9 any 1 terms.

[Claim 11] Said side-rail means (3) and frame means (4) Where the rail (31 32) of said side-rail means (3) is inserted in said insertion section (42) of said frame means (4) The cash-drawer implement for sheet metals according to claim 10 stopped by carrying forward the tongue screw thread (111) screwed in the body flank of said frame means (4) to said insertion section (42), and contacting said rail (32).

[Claim 12] The cash-drawer implement for sheet metals according to claim 5 or 6 which

formed said hanging means (8) with the sucker (81) and the connection string (82) which bound the end to this sucker (81) and bound the other end to said leg object (2).

[Claim 13] The cash-drawer implement for sheet metals according to claim 5 or 6 which formed said hanging means (8) with the magnet (86) and the connection string (82) which bound the end to this magnet (86) and bound the other end to said leg object (2).

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to amelioration of the cash-drawer implement for sheet metals convenient although the crevice which it is going to pull out is pulled out through the washer welded [this] about the cash-drawer implement for sheet metals especially at the time of a sheet metal.

[0002]

[Description of the Prior Art] The cash-drawer implement for sheet metals shown in drawing 17 thru/or drawing 20 is proposed as a cash-drawer implement for sheet metals convenient although the crevice 250 which it is going to pull out at the time of a sheet metal is conventionally pulled out through the metallic ornaments 260 welded [this / 250].

[0003]

[Problem(s) to be Solved by the Invention] In the conventional cash-drawer implement for sheet metals, the ** strut bar 203 is formed by the face-plate of one sheet. In order that the end of the arm 205 for actuation may be supported pivotably by the strut bar 203, may extend applicability and may enable a wide range cash-drawer activity, in making a strut bar 203 into a long picture When it is easy to produce deformation (to twist) in a strut bar 203 with actuation of the arm 205 for actuation and deformation breaks out, it stops making the business as a cash-drawer implement for sheet metals.;

** When the plane of composition of the plane-of-composition section 221 of a leg object 202 is carried out to the field where the waist is brittle and a cash-drawer activity is done, it is pressed directly under [plane-of-composition section] a leg object 202, and is in crater **** (refer to drawing 17). It will be in the condition of drawing 17 (B) from the condition of drawing 17 (A). The breakage section which needs a drawer moves (refer to drawing 18). It moves to the drawer side which was shown with the alternate long and short dash line 350 of drawing 18 (B) and which the field showed as the continuous line 360 by pulling out. It will be in the condition of drawing 18 (B) from the condition of drawing 18 (A). . In order to avoid this and to do a drawer activity efficiently moreover the neither more nor less Although it is validity (ideal) to carry out the plane of composition of the plane-of-composition section 221 of a leg object 202 to the part 310 (for example, frame section 310 grade formed by the outside panel 301 and the inside panel 302 of a door 300 of an automobile to refer to drawing 21) with the strong waist, and to do a cash-drawer activity as shown in drawing 19 Although the leg object 202 has composition slid to the longitudinal direction of a strut bar 203, since the movable rod 215 and the arm 205 for actuation are slid to the longitudinal direction of a strut bar 203 and cannot move a location, Where the plane of composition of the plane-of-composition section 221 of a leg object 202 is carried out to the part 310 with the strong waist The crevice produced not only at the cash drawer of the crevice (sign 365 of drawing 19) produced in the center section but at the edge In order to also make possible the cash drawer of (the crevice [for example,] 370 produced at the edge near the frame section 310 of the outside panel of the door of an automobile as shown in drawing 20) In the strut bar of die-length L shown in drawing 19 , it is insufficient, and a strut bar [long picture / that / which is shown in drawing 20 / die-length N (= L+M;N>L)] is needed. When a strut bar 203 became a long picture, the center of gravity of the part cash-drawer implement became instability, and weight increased, and there were troubles, such as; which handling

also becomes inconvenient and cannot perform a smooth and quick sheet metal work.

[0004] Therefore, reinforcement is endowed with the body of a cash-drawer implement, and the object of this invention is to offer the long cash-drawer implement for sheet metals of a life that it is hard to produce deformation at the time of actuation.

[0005] Other objects of this invention are to offer the cash-drawer implement for sheet metals which it constitutes so that a pin center,large shaft can be moved to the request of the longitudinal direction of a side-rail means in a location, and applicability is wide only by preparing the third rail means of the shortest die length, and a center of gravity is stabilized, and actuation tends to carry out.

[0006] The object besides one more of this invention is to offer the cash-drawer implement for sheet metals which can perform a sheet metal work exactly, checking visually the cash-drawer condition to the datum level which serves as a rule of thumb of a cash drawer with a cash-drawer depth check means.

[0007] Further, the object besides one more has the working efficiency at the time of the set of the cash-drawer implement to a sheet-metal side, and a sheet metal in offering the good cash-drawer implement for sheet metals, even when [of this invention] a side-rail means is a long picture.

[0008]

[Means for Solving the Problem] The leg object equipped with the plane-of-composition section to which invention of claim 1 of this application can contact a sheet-metal side, While intersecting perpendicularly with the longitudinal direction of a side-rail means to support this leg object, a frame means by which it was supported by this side-rail means and the pin center,large shaft advice section was formed in the center, and said side-rail means and being arranged While having the pin center,large shaft inserted in said frame means and constituting said side-rail means including two rails arranged so that it might be mutually parallel These two parallel rails are fixed through the spacer which forms Gage D. It is the cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft guided at said frame means being inserted in between said two parallel rails, and raising said pin center,large shaft.

[0009] The leg object equipped with the plane-of-composition section to which invention of claim 2 of this application can contact a sheet-metal side, While intersecting perpendicularly with the longitudinal direction of a side-rail means to support this leg object, a frame means by which it was supported by this side-rail means possible [sliding], and the pin center,large shaft advice section was formed in the center, and said side-rail means and being arranged While having the pin center,large shaft inserted in said frame means and constituting said side-rail means including two rails arranged so that it might be mutually parallel These two parallel rails are fixed through the spacer which forms Gage D. It is the cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft guided at said frame means being inserted in between said two parallel rails, and raising said pin center,large shaft.

[0010] The leg object equipped with the plane-of-composition section to which invention of claim 3 of this application can contact a sheet-metal side, While intersecting perpendicularly with the longitudinal direction of a side-rail means to support this leg object, a frame means by which it was supported by this side-rail means and the pin center,large shaft advice section was formed in the center, and said side-rail means and being arranged It has a cash-drawer depth check means to check the cash-drawer depth of the sheet metal to the datum level used as the pin center,large shaft inserted in said frame means, and the rule of thumb of the cash drawer of a sheet metal. While said side-rail means is constituted including two rails arranged so that it might be mutually parallel These two parallel rails are fixed through the spacer which forms Gage D. It is the cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft guided at said frame means being inserted in between said two parallel rails, and raising said pin center,large shaft.

[0011] The leg object equipped with the plane-of-composition section to which invention of claim 4 of this application can contact a sheet-metal side, While intersecting perpendicularly with the longitudinal direction of a side-rail means to support this leg object, a frame means by which it was supported by this side-rail means possible [sliding], and the pin center,large

shaft advice section was formed in the center, and said side-rail means and being arranged It has a cash-drawer depth check means to check the cash-drawer depth of the sheet metal to the datum level used as the pin center,large shaft inserted in said frame means, and the rule of thumb of the cash drawer of a sheet metal. While said side-rail means is constituted including two rails arranged so that it might be mutually parallel These two parallel rails are fixed through the spacer which forms Gage D. It is the cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft guided at said frame means being inserted in between said two parallel rails, and raising said pin center,large shaft.

[0012] The leg object equipped with the plane-of-composition section to which invention of claim 5 of this application can contact a sheet-metal side, While intersecting perpendicularly with the longitudinal direction of a side-rail means to support this leg object, a frame means by which it was supported by this side-rail means and the pin center,large shaft advice section was formed in the center, and said side-rail means and being arranged A cash-drawer depth check means to check the cash-drawer depth of the sheet metal to the datum level used as the pin center,large shaft inserted in said frame means, and the rule of thumb of the cash drawer of a sheet metal, While having a hanging means to hang the body for sheet metals of a cash-drawer implement and constituting said side-rail means including two rails arranged so that it might be mutually parallel These two parallel rails are fixed through the spacer which forms Gage D. It is the cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft guided at said frame means being inserted in between said two parallel rails, and raising said pin center,large shaft.

[0013] The leg object equipped with the plane-of-composition section to which invention of claim 6 of this application can contact a sheet-metal side, While intersecting perpendicularly with the longitudinal direction of a side-rail means to support this leg object, a frame means by which it was supported by this side-rail means possible [sliding], and the pin center,large shaft advice section was formed in the center, and said side-rail means and being arranged A cash-drawer depth check means to check the cash-drawer depth of the sheet metal to the datum level used as the pin center,large shaft inserted in said frame means, and the rule of thumb of the cash drawer of a sheet metal, While having a hanging means to hang the body for sheet metals of a cash-drawer implement and constituting said side-rail means including two rails arranged so that it might be mutually parallel These two parallel rails are fixed through the spacer which forms Gage D. It is the cash-drawer implement for sheet metals characterized by performing the drawer of a sheet-metal side, said pin center,large shaft guided at said frame means being inserted in between said two parallel rails, and raising said pin center,large shaft.

[0014] Invention of claim 7 of this application is a cash-drawer implement for sheet metals constituted including contact which the above-mentioned cash-drawer depth check means is arranged at the head of a measuring bar and this measuring bar at the free edge side of the spring which fixed the end, and this spring, and contacts a cash-drawer side.

[0015] Invention of claim 8 of this application is a cash-drawer implement for sheet metals by which the above-mentioned measuring bar of the above-mentioned cash-drawer depth check means is attached in the above-mentioned frame means with the pressure plate.

[0016] Invention of claim 9 of this application is a cash-drawer implement for sheet metals with which the above-mentioned frame means and a pin center,large shaft are united in the longitudinal direction of the above-mentioned side-rail means with an implement, and are arranged possible [sliding].

[0017] Invention of claim 10 of this application the above-mentioned frame means In the center of the vertical inner surface of an above-mentioned frame means to have the insertion section in which the rail of the above-mentioned side-rail means is inserted, and to demarcate this insertion section The protruding line is formed so that it may be inserted in the above-mentioned frame means and may extend in the longitudinal direction of the above-mentioned third rail means, and this protruding line is a cash-drawer implement for sheet metals which collaborates with the above-mentioned spacer and holds the above-mentioned gage D for the above-mentioned rail at the whole for the above-mentioned side-rail means.

[0018] The above-mentioned side-rail means and a frame means are in the condition which inserted the rail of the above-mentioned side-rail means in the above-mentioned insertion

section of the above-mentioned frame means, and invention of claim 11 of this application is a cash-drawer implement for sheet metals stopped by carrying forward the tongue screw thread screwed in the body flank of the above-mentioned frame means to the above-mentioned insertion section, and contacting the above-mentioned rail.

[0019] Invention of claim 12 of this application is the cash-drawer implement for sheet metals formed with the connection string with which the sucker and the end were bound to this sucker and it bound the other end for the above-mentioned hanging means to the above-mentioned leg object.

[0020] Invention of claim 13 of this application is the cash-drawer implement for sheet metals formed with the connection string with which the magnet and the end were bound to this magnet and it bound the other end for the above-mentioned hanging means to the above-mentioned leg object.

[0021]

[Embodiment of the Invention] The gestalt of operation of this invention is explained with an accompanying drawing. The perspective view showing the busy condition to which drawing 1 is pulling out the body of an automobile using the cash-drawer implement for sheet metals of this invention, The perspective view showing the condition that drawing 2 extended the perspective view of the cash-drawer implement for sheet metals, and drawing 3 extended the arm for actuation of the cash-drawer implement for sheet metals, The decomposition perspective view in which drawing 4 shows each component part of the cash-drawer implement for sheet metals, and drawing 5 The arm for actuation of the cash-drawer implement for sheet metals, The decomposition perspective view showing component parts, such as a pin center,large shaft and a connection arm, the decomposition perspective view showing the component part of a side-rail means by which drawing 6 constitutes the cash-drawer implement for sheet metals, The front view of the cash-drawer implement for sheet metals and drawing 9 of the decomposition perspective view in which drawing 7 shows the component part of the leg object of the cash-drawer implement for sheet metals, and drawing 8 are the rear view of the cash-drawer implement for sheet metals.

[0022] In these drawings, the cash-drawer implement 1 for sheet metals was supported by the leg objects 2 and 2 of the couple equipped with the plane-of-composition section 21 which can contact a sheet-metal side, a side-rail means 3 to support this leg object 2 possible [sliding], and this side-rail means 3, and is equipped with a frame means 4 by which the pin center,large shaft advice section was formed in that center. That is, this frame means 4 is supported by said side-rail means 3 possible [sliding], and the breakthrough is formed in the center as a slide frame means 4 by which 41 was drilled. Furthermore, while the cash-drawer implement 1 for sheet metals intersects perpendicularly and arranging it to the arm 5 for actuation of the couple which supported one edge each pivotably for this slide frame means 4, and the longitudinal direction of said side-rail means 3 The pin center,large shaft 15 which it is inserted in the breakthrough 41 of said slide frame means 4, and carries out movable by actuation of said arm 5 for actuation, It has the connection arm 16 which was arranged corresponding to said each arm 5 for actuation, and pivoted the other end in said pin center,large shaft 15 side for the end at said arm 5 for actuation, respectively. And said slide frame means 4, the arm 5 for actuation, and the center shaft 15 are united in the longitudinal direction of said side-rail means 3, and are arranged possible [sliding].

[0023] Among these, said leg object 2 is formed from the piece 25 of a rotation foot supported pivotably on the foot body 22 and this foot body 22 (refer to drawing 4 and drawing 7). The **** omission section 23 which said side rail 3 inserts in is formed in the upper part of said foot body 22, and branched ***** 24 and 24 is formed in the lower part. Said piece 25 of a rotation foot consists of the bases 27 which ****(ed) a foot board 26 and this foot board 26, and were formed as rubber putt. And said foot body 22 and the piece 25 of a rotation foot are connected by the connection member 28. This connection member 28 is equipped with minor-axis 28A, and guide rail 28B is formed in the center. Said connection member 28 is held in central hollow 26A formed in said foot board 26 where the presser-foot implement 104 is put on said minor-axis 28A, is ****ed through a washer 103, and is fixed to said foot board 26 by 102. Moreover, the tension spring 101 is inserted in said guide rail 28B, the upper part is contacted in the soffit section of said ***** 24, and said foot body 22 is supported pivotably in the connection member 28 using a bolt 105, a washer 106, and a nut

107. In this way, each piece 25 of a rotation foot of said leg object 2 is formed in the 4 of the direction (the direction of Y-Y of drawing 4 R> 4) which is supported pivotably by the lower part of a leg object 2, and intersects perpendicularly with the longitudinal direction (the direction of X-X of drawing 4) and longitudinal direction of said side-rail means 3 directions free [rotation]. Moreover, said leg object 2 is in the condition which guided and inserted said side-rail means 3 in said **** omission section 23, and can aim at immobilization with said side-rail means 3 and leg object 2 by carrying forward the tongue screw thread 110 screwed in the foot body 22 of said leg object 2 to said **** omission section 23, and contacting a rail 32. As for said leg object 2 and the spacing S between two (drawing 8 , R> drawing 9 9 reference), it is important to take spacing in the condition (for example, condition of carrying out the plane of composition of the plane-of-composition section 21 to the part with the strong waist of a cash-drawer side) of having selected suitably in consideration of the location of a cash-drawer part or the condition of the plane-of-composition section 21, and having been stabilized most.

[0024] Said side-rail means 3 is constituted including two rails 31 and 32 arranged so that it might be mutually parallel, and these two parallel rails 31 and said pin center,large shaft 15 guided for said slide frame means 4 among 32 insert it in (refer to drawing 6). Two parallel rails 31 and 32 which constitute said side-rail means 3 are fixed with a bolt 35 and a nut 36 through the spacer 33 which forms and holds Gage D (refer to drawing 10) in both ends. A sign 34 is the back up plate for rail reinforcement, is inserted from the ends dead air space of this rail 34, and is fixed with a bolt 35 and a nut 36.

[0025] Said slide frame means 4 is equipped with the insertion section 42 in which the rails 31 and 32 of said side frame means 3 are inserted, and protruding lines 43 and 44 are formed in the center of the vertical inner surface of said slide frame means 4 to demarcate this insertion section 42 so that it may be inserted in said slide frame means 4 and may extend in the longitudinal direction of said third rail means 3 (refer to drawing 4 and drawing 5). These protruding lines 43 and 44 collaborate with said spacer 33, and hold said gage D for said rail 31 and 32 at the whole for said side-rail means 3. Moreover, the standup sections 45 and 46 which **** said breakthrough 41 are formed in the longitudinal direction (drawing 4 , the direction of X-X in drawing 5) of said side-rail means 3, and the end face section of said arm 5 for actuation is supported pivotably in these standup sections 45 and 46 using a bolt 112, a washer 113, and a nut 114 (refer to drawing 4 R> 4 and drawing 5). And said slide frame means 4 is in the condition which inserted the rails 31 and 32 of said side-rail means 3 in said insertion section 42 of said slide frame means 4, the tongue screw thread 111 screwed in the body flank of said slide frame means 4 is carried forward to said insertion section 42, and a stop (immobilization) with said side-rail means 3 and the slide frame means 4 is achieved by contacting said rail 32. By making said slide frame means 4 slide, and making it move in this way, even if it can move said arm 5 for actuation, and the pin center,large shaft 15 to the location of the optimal request for a sheet metal work and forms the die length (**) of said said side-rail means 3 in the shortest, a wide range cash drawer is possible, and lightweight-ization can be attained.

[0026] Further, from the end face section, extension section 5A (refer to drawing 3 R> 3, drawing 4 , drawing 5 , and drawing 12) formed a little up uses a bolt 115, a washer 116, and a nut 117 for the end of said connection arm, and said arm 5 for actuation is supported pivotably, although the end face section is supported pivotably by said slide frame 4 as above-mentioned (refer to drawing 4). And this arm 5 for actuation is arranged so that it may be located on the flat-surface extension formed by the orbit of said two rails 31 and 32. For this reason, deformation (twist) of said side-rail means 3 can be prevented at the time of an activity, and a center of gravity is also stabilized. Furthermore, it can make the most of the reinforcement of said side-rail means 3.

[0027] Moreover, a cash-drawer depth check means 7 to check the cash-drawer depth of the sheet metal to the datum level used as the rule of thumb of the cash drawer of a sheet metal hangs for said slide frame means 4, and is arranged. This cash-drawer depth check means 7 is constituted including contact 74 which is arranged at the head of a knob 71, the measuring bar 72 connected with this knob 71, and this measuring bar 72 at the free edge side of the spring 73 which fixed the end, and this spring 73, and contacts a cash-drawer side and which was formed with the chip ball. Said measuring bar 72 is attached in said slide frame means 4

by the pressure plate 75 which ****s with a washer 76 and is attached firmly to said slide frame 4 by 77. A sheet metal work can be performed exactly, checking usually the cash-drawer condition to the datum level which serves as a rule of thumb of a cash drawer with this cash-drawer depth check means 7 in this way.

[0028] Furthermore, a hanging means 8 to hang the body for sheet metals of a cash-drawer implement is attached in said leg object 2. This hanging means 8 is constituted by the connection string 82 with which the sucker 81 and the end were bound to this sucker 81, and it bound the other end to said leg object 2. A sign 83 is a connection string adjustment means to adjust the connection string's 82 die length. Since it has this hanging means 8, even when the side-rail means 3 becomes a long picture, in case a cash-drawer implement is set, it is easy to do the activity at the time of a sheet metal.

[0029] The screw thread is engraved on the front face of the Johan section of said pin center, large shaft 15, and it is possible by rotating a handle 11 to adjust die-length h (to refer to drawing 8) of the pin center, large shaft which projects from the breakthrough 41 of said slide frame 4. A sign 12 is the rise-and-fall piece by which the pin center, large shaft 15 and the female screw section to screw were formed in the inside peripheral wall of a central breakthrough, and the other end of said connection arm 16 is pivoted using a bolt 122, a washer 123, and a nut 124 (refer to drawing 4 and drawing 5). Moreover, the soffit of said pin center, large shaft 15 is connected to an attachment 18 through the shell 17 which has the female screw section. In addition, the female screw section screws said shell 17 in said attachment 18, and said pin center, large shaft 15 is in the loosely-fitting condition which can be freely rotated within breakthrough 17A of said shell 17. A sign 125 is a washer and 126 is a nut.

[0030] When a deer is carried out, said arm 5 for actuation is operated, and the core R of rotation of the arm 5 for actuation and the pivoting points P and Q of said connection arm 16 are located in a line on a straight line, the pin center, large shaft 15 will be able to be pulled up most. This condition is in a condition just before an actuation arm on either side becomes abbreviation parallel, therefore as shown in drawing 2, drawing 8, and drawing 9, when the arms 5 and 5 for actuation on either side are operated and it becomes closing parallel thoroughly, the center shaft 15 falls below a little, and the center shaft 15 is locked by the arms 5 and 5 for actuation, and the connection arms 16 and 16.

[0031] (Operation of a sheet-metal cash-drawer implement) Here, the operation of the cash-drawer implement 1 for sheet metals concerning this invention is explained using drawing 14 and drawing R> drawing 15 5. Here, the case where the hollow 303 produced on the door 300 (refer to drawing 1 and drawing 21) outside panel 301 of an automobile is pulled out is explained.

** First, use the hanging means 8 for the automobile door 300 side of the opposite hand which does not need a drawer, hang the cash-drawer implement 1 for sheet metals, and set possible [a sheet metal], after adjusting the spacing S of leg objects 2 and 2.

** Next, slide the slide frame means 4 and bring contact 74 of the cash-drawer depth check means 7 to right above [of the location (location) equivalent to the hollow 303 which needs a drawer]. It sets so that a spring 73 and ***** 75 may be adjusted and contact 74 may contact the outside panel 301 of an automobile in this condition.

** Move shortly the cash-drawer implement 1 for sheet metals which operated the above-mentioned **** and was adjusted to the outside panel 301 side which needs a drawer. And the part where the about 303 crevice [which needs a drawer using the hanging means 8] waist is strong (frame section 310 formed by the outside panel 301 and the inside panel 302 of a door 300 of an automobile.) The plane of composition of the plane-of-composition section 21 of a leg object 2 is carried out to refer to drawing 21.

** Slide on the slide frame means 4, and set so that it may come to right above [of the hollow 303 for which the cash-drawer depth check means 7 needs a drawer].

** Operate the handle 11 of the pin center, large shaft 15, and make the washer 260 and attachment 18 which adjusted die-length h of the pin center, large shaft 15 which projects from the breakthrough 41 of the slide frame means 4, and welded [to pull out / 303] it engaged through a bar 270 (drawing 15).

** The grasping section of the arms 5 and 5 for actuation is grasped by hand, the arms 5 and 5 for actuation on either side are operated, it moves to the pin center, large shaft 15 position,

and closing and contact 74 pull out gradually, and contact a field (hollow) 303, further, in consideration of a part return, pull out to extent which contact 74 made up a little, and pull up a field 303. At this time, the center shaft 15 can be pulled up by the lever rule. In connection with this, a washer 260 can also be pulled up, and the hollow 303 which it is going to pull out is pulled out. under the present circumstances -- each washer 260 -- abbreviation -- since the uniform force is applied, a hollow 303 is pulled out by homogeneity and a drawer side becomes smooth. And the reaction force of the force which pulls out a drawer side is distributed by the plane-of-composition sections 21 and 21. When the arms 5 and 5 for actuation on either side are closed, since the pin center, large shaft 15 is locked, where a crevice 303 is pulled, it can perform a beat activity and a hating process, and can do a smooth drawer activity.

[0032] In addition, as shown in drawing 16, the foot body 222 of a leg object 202 may be formed by the simple-membranous-limb-of-semicircular-duct child 224, or a magnet 86 may be used instead of a sucker 81.

[0033]

[Effect of the Invention] This invention is constituted like the above, and according to this invention, it does the following effectiveness so.

** Since reinforcement is endowed with a side-rail means to constitute the body of a cash-drawer implement and it is hard to produce deformation at the time of actuation, the long cash-drawer implement for sheet metals of a life is obtained.

** since the cash drawer wide range only by preparing the third rail means of the shortest die length since it constitutes so that a pin center, large shaft can be moved to the request of the longitudinal direction of a side-rail means in a location became possible and the center of gravity is also stable -- actuation -- carrying out -- easy -- a sheet metal work -- insurance -- and it can carry out easily.

** Since SETTODE [the cash drawer to the datum plane which serves as a rule of thumb of a cash drawer with a cash-drawer depth check means] beforehand, the useless sheet metal work which is not becomes possible.

** Since it has a hanging means to hang the body of a sheet-metal tool even when a side-rail means is a long picture, when setting a cash-drawer implement to a sheet-metal side, it is good, and the working efficiency at the time of a sheet metal can work further at the time of a sheet metal, being able to concentrate only on a cash-drawer activity.

[Translation done.]

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1. This document has been translated by computer. So the translation may not reflect the original precisely.

2. **** shows the word which can not be translated.

3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing the busy condition which is pulling out the body of an automobile using the cash-drawer implement for sheet metals of this invention.

[Drawing 2] It is the perspective view of the cash-drawer implement for sheet metals.

[Drawing 3] It is the perspective view showing the condition of having extended the arm for actuation which constitutes the cash-drawer implement for sheet metals.

[Drawing 4] It is the decomposition perspective view showing each component part of the cash-drawer implement for sheet metals.

[Drawing 5] It is the decomposition perspective view showing each component part of a slide frame means to constitute the cash-drawer implement for sheet metals, the arm for actuation, a pin center, large shaft, and a connection arm.

[Drawing 6] It is the decomposition perspective view showing the component part of a side-rail means to constitute the cash-drawer implement for sheet metals.

[Drawing 7] The decomposition perspective view and drawing 8 which show the component part of the leg object which constitutes the cash-drawer implement for sheet metals are the front view of the cash-drawer implement for sheet metals.

[Drawing 8] It is the front view of the cash-drawer implement for sheet metals.

[Drawing 9] It is the rear view of the cash-drawer implement for sheet metals.

[Drawing 10] It is the top view of the cash-drawer implement for sheet metals.

[Drawing 11] It is the side elevation of the cash-drawer implement for sheet metals.

[Drawing 12] It is the perspective view showing the important section in the condition of operating the arm for actuation which constitutes the cash-drawer implement for sheet metals.

[Drawing 13] It is the front view showing the important section in the condition of having pulled out a slide frame means to constitute the cash-drawer implement for sheet metals, and having made it sliding to a field.

[Drawing 14] It is the flat-surface schematic drawing showing the busy condition of a cash-drawer depth check means to constitute the cash-drawer implement for sheet metals.

[Drawing 15] It is the flat-surface schematic drawing showing the busy condition of a cash-drawer depth check means to constitute the cash-drawer implement for sheet metals, and the important section of a cash-drawer depth check means is expanded and shown in the block of a rectangular head.

[Drawing 16] It is the perspective view showing other examples of the cash-drawer implement for sheet metals.

[Drawing 17] It is the front view showing the busy condition of the conventional cash-drawer implement for sheet metals.

[Drawing 18] It is the front view showing the busy condition of the conventional cash-drawer implement for sheet metals.

[Drawing 19] It is the front view showing the busy condition of the conventional cash-drawer implement for sheet metals.

[Drawing 20] It is the front view showing the busy condition of the conventional cash-drawer implement for sheet metals.

[Drawing 21] It is the schematic drawing showing the door of an automobile, and drawing 21 (A) is the perspective view, and drawing 21 (B) is the Z-Z cross-section schematic drawing

of drawing 21 (A).

[Description of Notation]

- 1 Cash-Drawer Implement for Sheet Metals
- 2 Leg Object
- 3 Side-Rail Means
- 4 Slide Frame Means
- 5 Arm for Actuation
- 7 Cash-Drawer Depth Check Means
- 8 Hanging Means
- 15 Pin Center,large Shaft
- 16 Connection Arm
- 31 Rail
- 32 Rail
- 33 Spacer
- 21 Plane-of-Composition Section
- 41 Breakthrough
- 72 Measuring Bar
- 73 Spring
- 74 Contact
- 81 Sucker
- 82 Connection String

[Translation done.]